

SEQUENCE LISTING

<110> Long, Li
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 Zaror, Isabel

<120> Methods of Therapy for B Cell-Related
 Cancers

<130> PP22244.002 (284270)

<150> 60/613,885
 <151> 2004-09-28

<150> 60/565,710
 <151> 2004-04-27

<150> 60/525,579
 <151> 2003-11-26

<150> 60/517,337
 <151> 2003-11-04

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1
 <211> 720
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Coding sequence for light chain of CHIR-12.12
 human anti-CD40 antibody

<221> CDS
 <222> (1)...(720)

<400> 1
 atg gcg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc tct 48
 Met Ala Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Ser
 1 5 10 15
 gga tcc agt ggg gat att gtg atg act cag tct cca ctc tcc ctg acc 96
 Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Thr
 20 25 30
 gtc acc cct gga gag ccg gcc tcc atc tcc tgc agg tcc agt cag agc 144
 Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45
 ctc ctg tat agt aat gga tac aac tat ttg gat tgg tac ctg cag aag 192
 Leu Leu Tyr Ser Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys
 50 55 60
 cca ggg cag tct cca cag gtc ctg atc tct ttg ggt tct aat cgg gcc 240
 Pro Gly Gln Ser Pro Gln Val Leu Ile Ser Leu Gly Ser Asn Arg Ala
 65 70 75 80
 tcc ggg gtc cct gac agg ttc agt ggc agt gga tca ggc aca gat ttt 288
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

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aca ctg aaa atc agc aga gtg gag gct gag gat gtt ggg gtt tat tac 336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

tgc atg caa gct cga caa act cca ttc act ttc ggc cct ggg acc aaa 384
Cys Met Gln Ala Arg Gln Thr Pro Phe Thr Phe Gly Pro Gly Thr Lys
115 120 125

gtg gat atc aga cga act gtg gct gca cca tct gtc ttc atc ttc ccg 432
Val Asp Ile Arg Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
130 135 140

cca tct gat gag cag ttg aaa tct gga act gcc tct gtt gtg tgc ctg 480
Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
145 150 155

ctg aat aac ttc tat ccc aga gag gcc aaa gta cag tgg aag gtg gat 528
Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
165 170 175

aac gcc ctc caa tcg ggt aac tcc cag gag agt gtc aca gag cag gac 576
Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
180 185 190

agc aag gac agc acc tac agc ctc agc agc acc ctg acg ctg agc aaa 624
Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
195 200 205

gca gac tac gag aaa cac aaa gtc tac gcc tgc gaa gtc acc cat cag 672
Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
210 215 220

ggc ctg agc tcg ccc gtc aca aag agc ttc aac agg gga gag tgt tag 720
Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys *
225 230 235

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<210> 2

<211> 239

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain of CHIR-12.12 human anti-CD40 antibody

<400> 2

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Met Ala Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Ser
1 5 10 15
Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Thr
20 25 30
Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45
Leu Leu Tyr Ser Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys
50 55 60
Pro Gly Gln Ser Pro Gln Val Leu Ile Ser Leu Gly Ser Asn Arg Ala
65 70 75 80
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
85 90 95
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110
Cys Met Gln Ala Arg Gln Thr Pro Phe Thr Phe Gly Pro Gly Thr Lys
115 120 125
Val Asp Ile Arg Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
130 135 140

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ser | Asp | Glu | Gln | Leu | Lys | Ser | Gly | Thr | Ala | Ser | Val | Val | Cys | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Asn | Asn | Phe | Tyr | Pro | Arg | Glu | Ala | Lys | Val | Gln | Trp | Lys | Val | Asp |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Asn | Ala | Leu | Gln | Ser | Gly | Asn | Ser | Gln | Glu | Ser | Val | Thr | Glu | Gln | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Lys | Asp | Ser | Thr | Tyr | Ser | Leu | Ser | Ser | Thr | Leu | Thr | Leu | Ser | Lys |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Ala | Asp | Tyr | Glu | Lys | His | Lys | Val | Tyr | Ala | Cys | Glu | Val | Thr | His | Gln |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Leu | Ser | Ser | Pro | Val | Thr | Lys | Ser | Phe | Asn | Arg | Gly | Glu | Cys | |
| 225 | | | | | 230 | | | | | 235 | | | | | |

<210> 3

<211> 2016

<212> DNA

<213> Artificial Sequence

<220>

<223> Coding sequence for heavy chain of CHIR-12.12
human anti-CD40 antibody (with introns)

<400> 3

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|------------|------------|-------------|------------|-------------|-------------|------|
| atggagtttg | ggctgagctg | ggtttttcctt | gttgcatttt | taagaggtgt | ccagtgtcag | 60 |
| gtgcagttgg | tggagtctgg | gggaggcgtg | gtccagcctg | ggaggtccct | gagactctcc | 120 |
| tgtgcagcct | ctggattcac | cttcagtagc | tatggcatgc | actgggtccg | ccaggctcca | 180 |
| ggcaaggggc | tggagtgggt | ggcagttata | tcatatgagg | aaagtaatag | ataccatgca | 240 |
| gactcgtgga | agggccgatt | caccatctcc | agagacaatt | ccaagatcac | gctgtatctg | 300 |
| caaataaaca | gcctcagaac | tgaggacacg | gctgtgtatt | actgtgagag | agatgggggt | 360 |
| atagcagcac | ctgggcctga | ctactggggc | cagggaaccc | tggtcaccgt | ctcctcagca | 420 |
| agtaccaagg | gccccctcgt | cttccccctg | gcgcccgtca | gcaagagcac | ctctgggggc | 480 |
| acagcggccc | tgggctgcct | ggtcaaggac | tacttccccg | aaccgggtgac | ggtgtcgtgg | 540 |
| aactcaggcg | ccctgaccag | cggcgtgcac | accttccccg | ctgtcctaca | gtcctcagga | 600 |
| ctctactccc | tcagcagcgt | ggtgaccgtg | ccctccagca | gcttggggcac | ccagacctac | 660 |
| atctgcaacg | tgaatcacaa | gcccagcaac | accaaggtgg | acaagagagt | tggtgagagg | 720 |
| ccagcacagg | gagggagggg | gtctgtctgga | agccaggctc | agcgtcctg | cctggagcga | 780 |
| tcccggctat | gcagtcccag | tccagggcag | caaggcaggc | cccgtctgcc | tcttcacccg | 840 |
| gaggcctctg | cccgccccac | tcattgctcag | ggagagggtc | ttctggcttt | ttccccaggc | 900 |
| tctgggcagg | cacaggctag | gtgccccctaa | cccaggccct | gcacacaaag | gggcagggtgc | 960 |
| tgggtcaga | cctgccaaga | gccatatccg | ggaggaccct | gccccctgacc | taagcccacc | 1020 |
| ccaaaggcca | aactctccac | tccctcagct | cggacacctt | ctctcctccc | agattccagt | 1080 |
| aactcccaat | cttctctctg | cagagcccaa | atcttgtgac | aaaactcaca | catgcccacc | 1140 |
| gtgcccagg | aagccagccc | aggcctcgcc | ctocagctca | aggcgggaca | ggtgcccctag | 1200 |
| agtagcctgc | atccagggac | aggccccagc | cgggtgctga | cacgtccacc | tccatctctt | 1260 |
| cctcagcacc | tgaactcctg | gggggaccgt | cagtcttcct | cttcccccca | aaacccaagg | 1320 |
| acaccctcat | gatctcccgg | acccctgagg | tcacatgcgt | ggtgggtggac | gtgagccacg | 1380 |
| aagaccctga | ggtcaagttc | aactggtacg | tggacggcgt | ggaggtgcat | aatgccaaaga | 1440 |
| caaagccgcg | ggaggagcag | tacaacagca | cgtaccgtgt | ggtcagcgtc | ctcaccgtcc | 1500 |
| tgcaccagga | ctggctgaat | ggcaaggagt | acaagtgcaa | ggtctccaac | aaagccctcc | 1560 |
| cagcccccat | cgagaaaacc | atctccaaag | ccaaggtgg | gaccctggg | gtgagggggc | 1620 |
| cacatggaca | gaggccgggt | cggcccaccc | tctgccctga | gagtgaccgc | tgtaccaacc | 1680 |
| tctgtcccta | cagggcagcc | ccgagaacca | caggtgtaca | ccctgcccc | atccccgggag | 1740 |
| gagatgacca | agaaccagg | cagcctgacc | tgctgtgtca | aaggcttcta | tcccagcgac | 1800 |
| atcgccgtgg | agtgggagag | caatgggcag | ccggagaaca | actacaagac | cacgcctccc | 1860 |
| gtgctggact | ccgacggctc | cttcttcctc | tatagcaagc | tcaccgtgga | caagagcagg | 1920 |
| tggcagcagg | ggaacgtctt | ctcatgtctc | gtgatgcagt | aggctctgca | caaccactac | 1980 |
| acgcagaaga | gcctctccct | gtctccgggt | aaatga | | | 2016 |

<210> 4

<211> 469

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of CHIR-12.12 human anti-CD40 antibody

<400> 4

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Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly
 1      5      10      15
Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
 20      25      30
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35      40      45
Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 50      55      60
Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala
 65      70      75      80
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile
 85      90      95
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val
 100     105     110
Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr
 115     120     125
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 130     135     140
Pro Ser Val Phe Pro Leu Ala Pro Ala Ser Lys Ser Thr Ser Gly Gly
 145     150     155     160
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 165     170     175
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
 180     185     190
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 195     200     205
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 210     215     220
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 225     230     235     240
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 245     250     255
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 260     265     270
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 275     280     285
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 290     295     300
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 305     310     315     320
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 325     330     335
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 340     345     350
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 355     360     365
Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 370     375     380
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 385     390     395     400
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 405     410     415
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 420     425     430
Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 435     440     445
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450     455     460
Leu Ser Pro Gly Lys
465

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<210> 5

<211> 469

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of variant of CHIR-12.12 human
anti-CD40 antibody

<400> 5

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Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly
 1          5          10          15
Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
          20          25          30
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
          35          40          45
Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
          50          55          60
Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala
          65          70          75          80
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile
          85          90          95
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val
          100          105          110
Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr
          115          120          125
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
          130          135          140
Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
          145          150          155          160
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
          165          170          175
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
          180          185          190
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
          195          200          205
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
          210          215          220
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
          225          230          235          240
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
          245          250          255
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
          260          265          270
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
          275          280          285
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
          290          295          300
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
          305          310          315          320
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
          325          330          335
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
          340          345          350
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
          355          360          365
Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
          370          375          380
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
          385          390          395          400
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
          405          410          415
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
          420          425          430
Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
          435          440          445

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Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450 455 460
 Leu Ser Pro Gly Lys
 465

<210> 6
 <211> 239
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain of CHIR-5.9 human anti-CD40 antibody

<400> 6
 Met Ala Leu Leu Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15
 Gly Ser Ser Gly Ala Ile Val Met Thr Gln Pro Pro Leu Ser Ser Pro
 20 25 30
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45
 Leu Val His Ser Asp Gly Asn Thr Tyr Leu Asn Trp Leu Gln Gln Arg
 50 55 60
 Pro Gly Gln Pro Pro Arg Leu Leu Ile Tyr Lys Phe Phe Arg Arg Leu
 65 70 75 80
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ala Gly Thr Asp Phe
 85 90 95
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110
 Cys Met Gln Val Thr Gln Phe Pro His Thr Phe Gly Gln Gly Thr Arg
 115 120 125
 Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
 130 135 140
 Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
 145 150 155 160
 Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
 165 170 175
 Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
 180 185 190
 Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
 195 200 205
 Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
 210 215 220
 Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

<210> 7
 <211> 474
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of CHIR-5.9 human anti-CD40 antibody

<400> 7
 Met Gly Ser Thr Ala Ile Leu Ala Leu Leu Leu Ala Val Leu Gln Gly
 1 5 10 15
 Val Cys Ala Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30
 Pro Gly Glu Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe
 35 40 45
 Thr Ser Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu
 50 55 60

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Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser
65          70          75          80
Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser
          85          90          95
Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met
          100         105         110
Tyr Tyr Cys Ala Arg Gly Thr Ala Ala Gly Arg Asp Tyr Tyr Tyr Tyr
          115         120         125
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
          130         135         140
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ala Ser Lys
          145         150         155         160
Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
          165         170         175
Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
          180         185         190
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
          195         200         205
Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
          210         215         220
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
          225         230         235         240
Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
          245         250         255
Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
          260         265         270
Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
          275         280         285
Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
          290         295         300
Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
          305         310         315         320
Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
          325         330         335
His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
          340         345         350
Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
          355         360         365
Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
          370         375         380
Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
          385         390         395         400
Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
          405         410         415
Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
          420         425         430
Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
          435         440         445
Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
          450         455         460
Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
          465         470

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<210> 8

<211> 474

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of variant of CHIR-5.9 human anti-CD40
antibody

<400> 8

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Met Gly Ser Thr Ala Ile Leu Ala Leu Leu Leu Ala Val Leu Gln Gly
 1          5          10          15
Val Cys Ala Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
          20          25          30
Pro Gly Glu Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe
          35          40          45
Thr Ser Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu
          50          55          60
Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser
65          70          75          80
Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser
          85          90          95
Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met
          100          105          110
Tyr Tyr Cys Ala Arg Gly Thr Ala Ala Gly Arg Asp Tyr Tyr Tyr Tyr
          115          120          125
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
130          135          140
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
145          150          155          160
Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
          165          170          175
Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
          180          185          190
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
          195          200          205
Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
210          215          220
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
225          230          235          240
Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
          245          250          255
Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
          260          265          270
Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
          275          280          285
Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
290          295          300
Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
305          310          315          320
Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
          325          330          335
His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
          340          345          350
Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
          355          360          365
Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
370          375          380
Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
385          390          395          400
Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
          405          410          415
Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
          420          425          430
Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
          435          440          445
Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
450          455          460
Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
465          470

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<210> 9
<211> 612
<212> DNA
<213> Homo sapiens

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<220>

<221> CDS

<222> (1)...(612)

<221> misc_feature

<222> (0)...(0)

<223> Coding sequence for short isoform of human CD40

<400> 9

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atg gtt cgt ctg cct ctg cag tgc gtc ctc tgg ggc tgc ttg ctg acc 48
Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
      1              5              10              15

gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
      20              25              30

ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
      35              40              45

agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192
Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
      50              55              60

agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240
Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
      65              70              75              80

aaa tac tgc gac ccc aac cta ggg ctt cgg gtc cag cag aag ggc acc 288
Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
      85              90              95

tca gaa aca gac acc atc tgc acc tgt gaa gaa ggc tgg cac tgt acg 336
Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
      100             105             110

agt gag gcc tgt gag agc tgt gtc ctg cac cgc tca tgc tcg ccc ggc 384
Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
      115             120             125

ttt ggg gtc aag cag att gct aca ggg gtt tct gat acc atc tgc gag 432
Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
      130             135             140

ccc tgc cca gtc ggc ttc ttc tcc aat gtg tca tct gct ttc gaa aaa 480
Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
      145             150             155             160

tgt cac cct tgg aca agg tcc cca gga tcg gct gag agc cct ggt ggt 528
Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly
      165             170             175

gat ccc cat cat ctt cgg gat cct gtt tgc cat cct ctt ggt gct ggt 576
Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly
      180             185             190

ctt tat caa aaa ggt ggc caa gaa gcc aac caa taa 612
Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln *
      195             200

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<210> 10

<211> 203

<212> PRT

<213> Homo sapiens

<400> 10

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Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
 1           5           10           15
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
          20           25           30
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
      35           40           45
Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
      50           55           60
Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
      65           70           75           80
Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
          85           90           95
Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
          100          105          110
Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
          115          120          125
Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
      130          135          140
Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
      145          150          155          160
Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly
          165          170          175
Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly
          180          185          190
Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln
          195          200

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<210> 11

<211> 834

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(834)

<221> misc_feature

<222> (0)...(0)

<223> Coding sequence for long isoform of human CD40

<400> 11

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atg gtt cgt ctg cct ctg cag tgc gtc ctc tgg ggc tgc ttg ctg acc 48
Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
 1           5           10           15

gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
          20           25           30

ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
      35           40           45

agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192
Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
      50           55           60

agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240
Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
      65           70           75           80

aaa tac tgc gac ccc aac cta ggg ctt cgg gtc cag cag aag ggc acc 288

```

```

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
      85                      90                      95

tca gaa aca gac acc atc tgc acc tgt gaa gaa ggc tgg cac tgt acg   336
Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
      100                      105                      110

agt gag gcc tgt gag agc tgt gtc ctg cac cgc tca tgc tcg ccc ggc   384
Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
      115                      120                      125

ttt ggg gtc aag cag att gct aca ggg gtt tct gat acc atc tgc gag   432
Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
      130                      135                      140

ccc tgc cca gtc ggc ttc ttc tcc aat gtg tca tct gct ttc gaa aaa   480
Pro Cys Pro Val Gly Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
      145                      150                      155

tgt cac cct tgg aca agc tgt gag acc aaa gac ctg gtt gtg caa cag   528
Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
      165                      170                      175

gca ggc aca aac aag act gat gtt gtc tgt ggt ccc cag gat cgg ctg   576
Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu
      180                      185                      190

aga gcc ctg gtg gtg atc ccc atc atc ttc ggg atc ctg ttt gcc atc   624
Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile
      195                      200                      205

ctc ttg gtg ctg gtc ttt atc aaa aag gtg gcc aag aag cca acc aat   672
Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn
      210                      215                      220

aag gcc ccc cac ccc aag cag gaa ccc cag gag atc aat ttt ccc gac   720
Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp
      225                      230                      235

gat ctt cct ggc tcc aac act gct gct cca gtg cag gag act tta cat   768
Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His
      245                      250                      255

gga tgc caa ccg gtc acc cag gag gat ggc aaa gag agt cgc atc tca   816
Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser
      260                      265                      270

gtg cag gag aga cag tga
Val Gln Glu Arg Gln *
      275

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<210> 12

<211> 277

<212> PRT

<213> Homo sapiens

<400> 12

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Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
  1          5          10          15
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
      20          25          30
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
      35          40          45
Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
      50          55          60

```

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Glu | Phe | Leu | Asp | Thr | Trp | Asn | Arg | Glu | Thr | His | Cys | His | Gln | His |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Tyr | Cys | Asp | Pro | Asn | Leu | Gly | Leu | Arg | Val | Gln | Gln | Lys | Gly | Thr |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ser | Glu | Thr | Asp | Thr | Ile | Cys | Thr | Cys | Glu | Glu | Gly | Trp | His | Cys | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Glu | Ala | Cys | Glu | Ser | Cys | Val | Leu | His | Arg | Ser | Cys | Ser | Pro | Gly |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Gly | Val | Lys | Gln | Ile | Ala | Thr | Gly | Val | Ser | Asp | Thr | Ile | Cys | Glu |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Pro | Cys | Pro | Val | Gly | Phe | Phe | Ser | Asn | Val | Ser | Ser | Ala | Phe | Glu | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Cys | His | Pro | Trp | Thr | Ser | Cys | Glu | Thr | Lys | Asp | Leu | Val | Val | Gln | Gln |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Gly | Thr | Asn | Lys | Thr | Asp | Val | Val | Cys | Gly | Pro | Gln | Asp | Arg | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Ala | Leu | Val | Val | Ile | Pro | Ile | Ile | Phe | Gly | Ile | Leu | Phe | Ala | Ile |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Leu | Leu | Val | Leu | Val | Phe | Ile | Lys | Lys | Val | Ala | Lys | Lys | Pro | Thr | Asn |
| | | 210 | | | | 215 | | | | | | 220 | | | |
| Lys | Ala | Pro | His | Pro | Lys | Gln | Glu | Pro | Gln | Glu | Ile | Asn | Phe | Pro | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Leu | Pro | Gly | Ser | Asn | Thr | Ala | Ala | Pro | Val | Gln | Glu | Thr | Leu | His |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Cys | Gln | Pro | Val | Thr | Gln | Glu | Asp | Gly | Lys | Glu | Ser | Arg | Ile | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Gln | Glu | Arg | Gln | | | | | | | | | | | |
| | | | | 275 | | | | | | | | | | | |